FIG.1

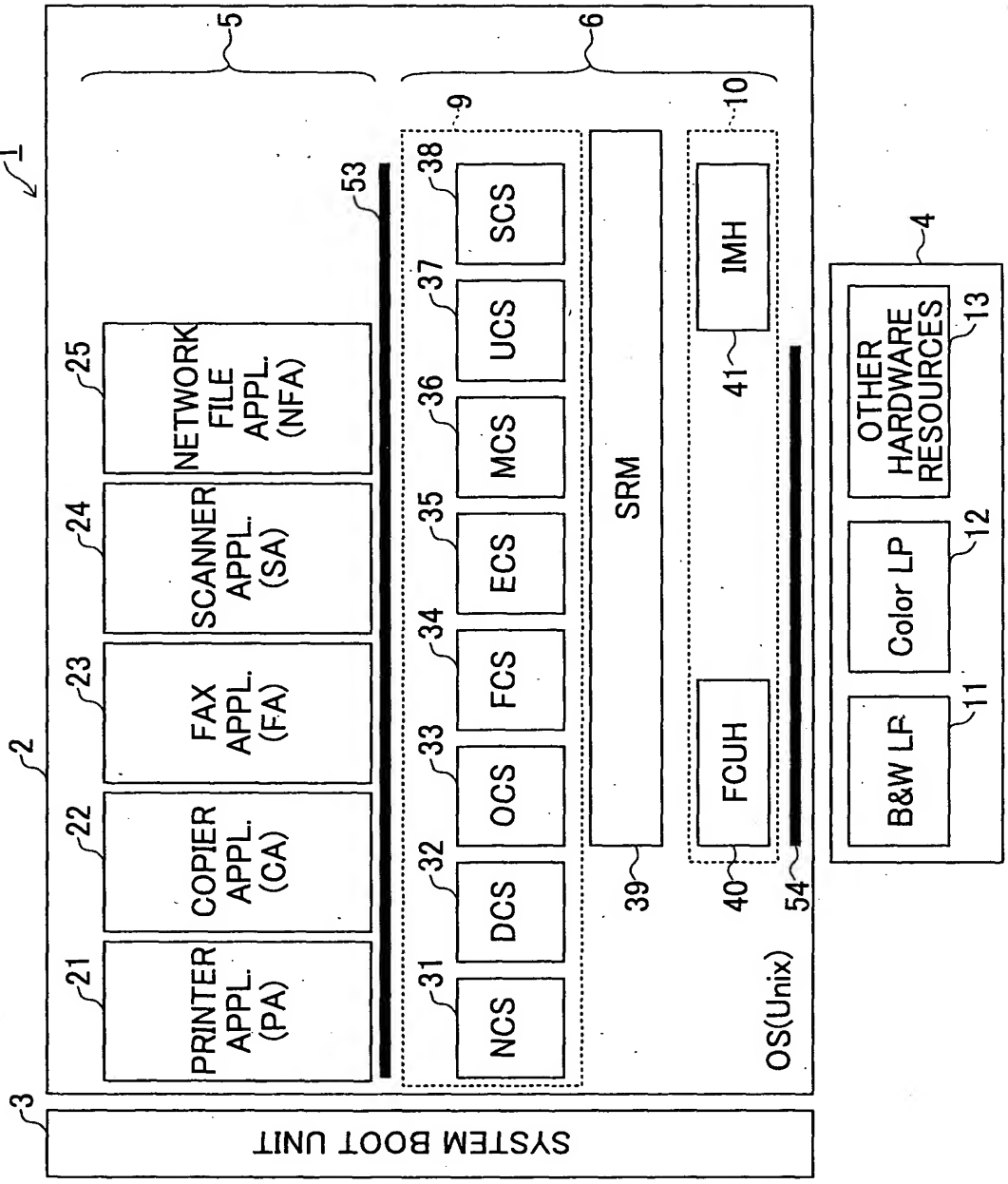
1
2
3
4
5
6
9
10
11
12
13
21
22
23
24
25
31
32
33
34
35
36
37
38
39
40
41
53
54
SYSTEM BOOT UNIT
OS(Unix)
PRINTER APPL. (PA)
COPIER APPL. (CA)
FAX APPL. (FA)
SCANNER APPL. (SA)
NETWORK FILE APPL. (NFA)
NCS
DCS
OCS
FCS
ECS
MCS
UCS
SCS
SRM
FCUH
IMH
B&W LP
Color LP
OTHER HARDWARE RESOURCES

FIG.2

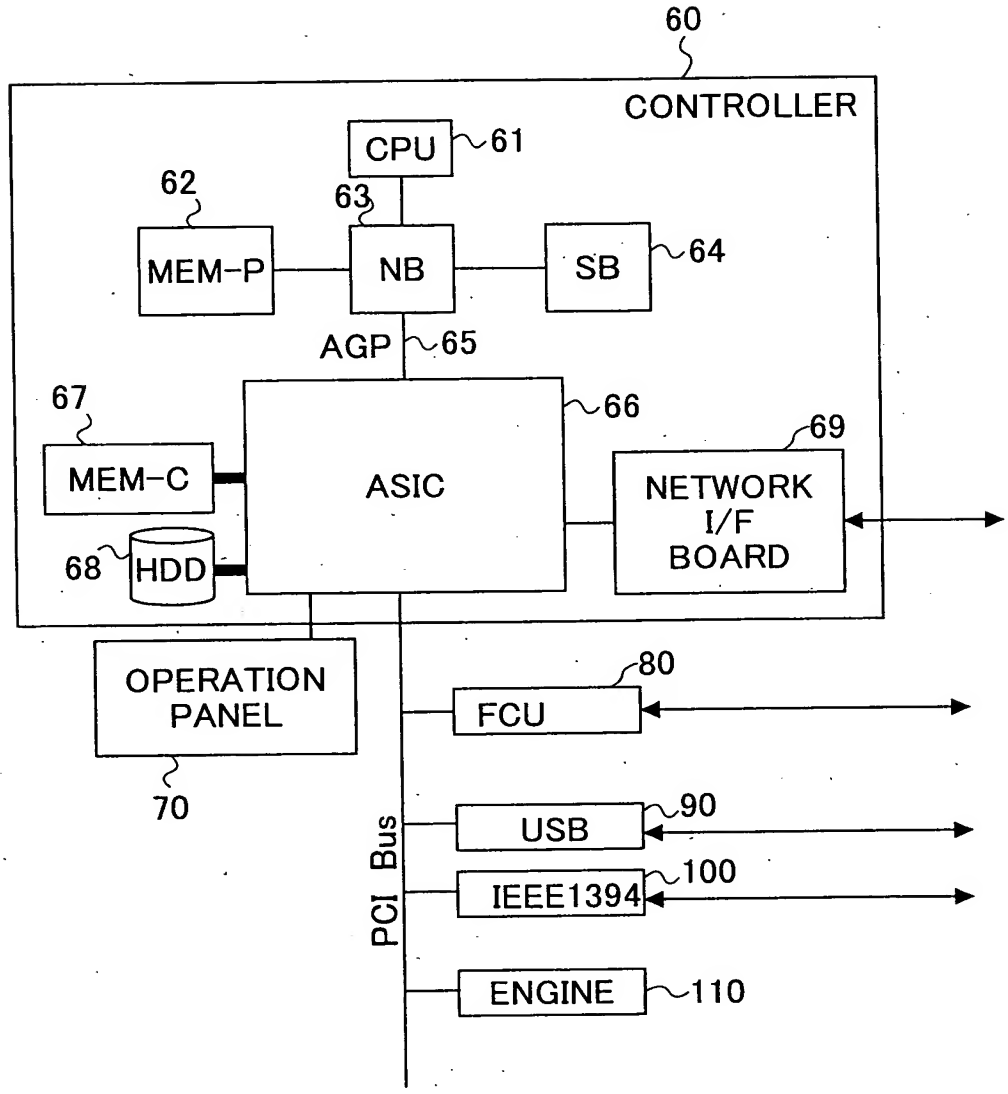
60
CONTROLLER
CPU
61
62
63
MEM-P
NB
SB
64
AGP
65
67
66
69
MEM-C
ASIC
NETWORK
I/F
BOARD
68
HDD
OPERATION
PANEL
70
80
FCU
90
USB
100
IEEE1394
PCI Bus
ENGINE
110

FIG.3

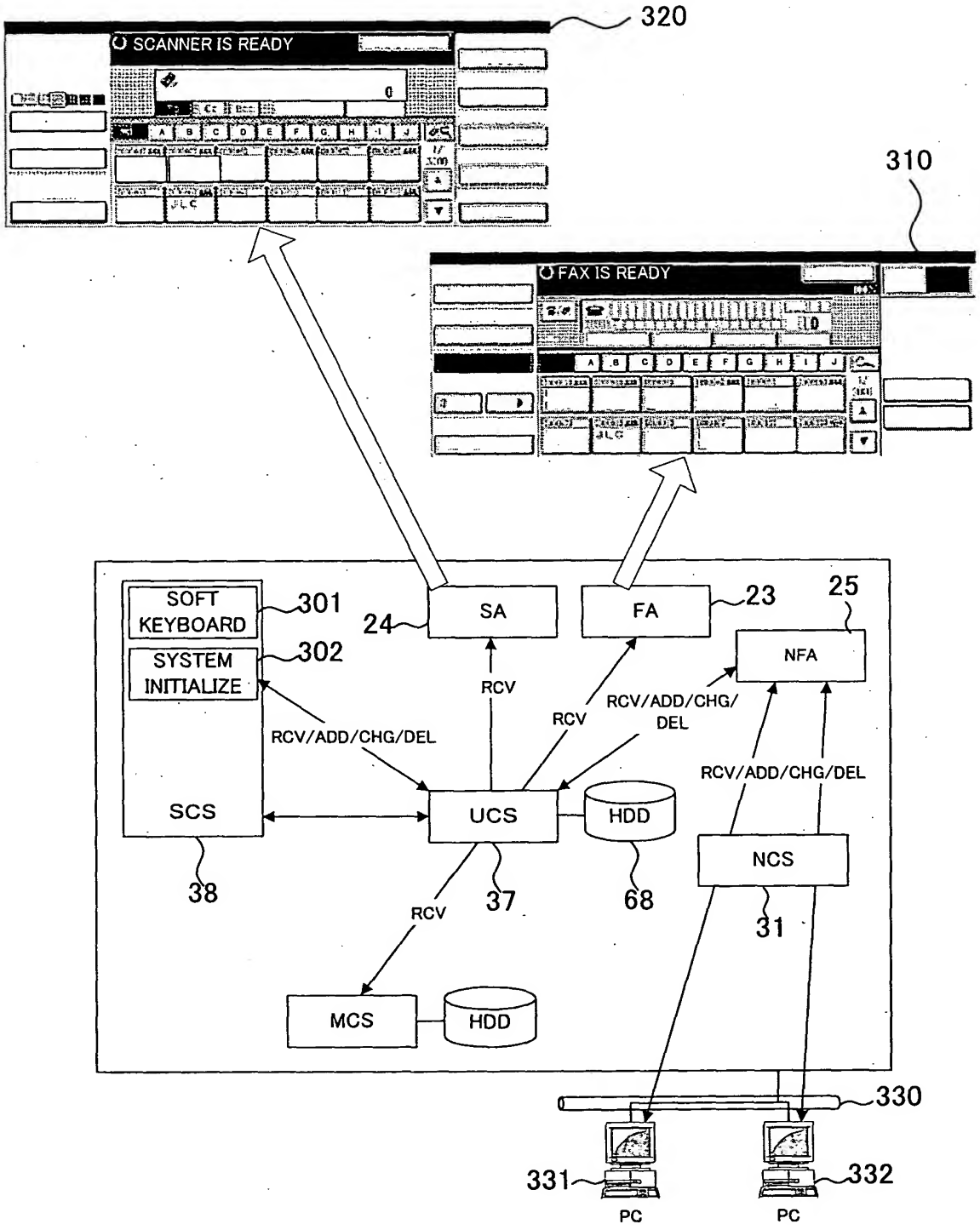
320
SCANNER IS READY
310
FAX IS READY
SOFT KEYBOARD
301
SYSTEM INITIALIZE
302
SCS
38
24
SA
FA
23
25
NFA
RCV
RCV/ADD/CHG/DEL
RCV
RCV/ADD/CHG/DEL
RCV/ADD/CHG/DEL
UCS
HDD
68
37
RCV
NCS
31
MCS
HDD
330
331
PC
332
PC

FIG.4

	NO. OF ENTRY ID	HEADINGS	USER CODE	E-MAIL ADDRESS	FAX NUMBER	GROUP DATA	RELAY DATA	AUTHENTICATE	SCHEDULING
COPY	100	A, B, C, D, ...	12345678						NO
COPY + FAX	710	A, B, C, D, ...	12345678		03-1234-5678	MEMBER ID LIST : 1,5,9...	#10		YES
COPY + FAX + SCANNER	2110	A, B, C, D, ...	12345678	address@ricoh.co.jp	03-1234-5678	MEMBER ID LIST : 1,5,9...	#10	password	YES
COPY + SCANNER	2100	A, B, C, D, ...	12345678	address@ricoh.co.jp		MEMBER ID LIST : 1,5,9...		password	YES

OBLON, SPIVAK, ET AL
DOCKET #: 242553US2
INV: Junichi MINATO
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FIG.5

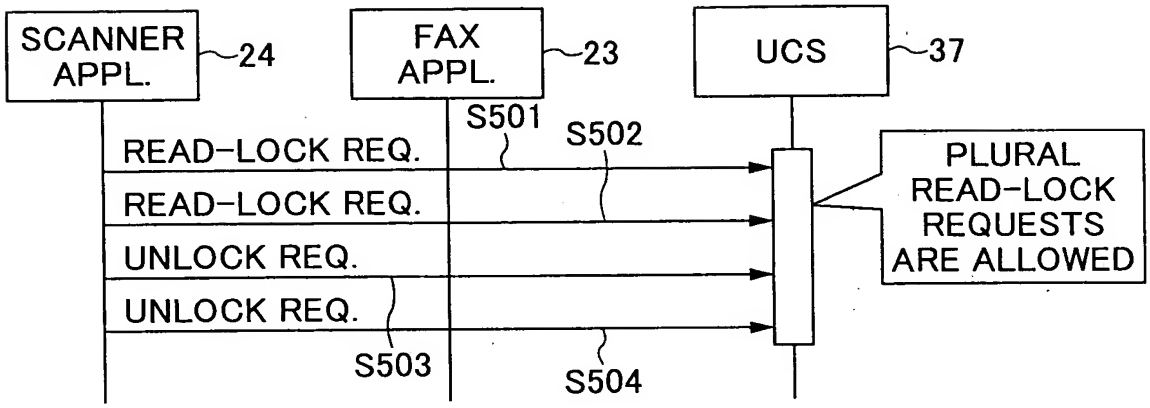

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S501
S502
READ-LOCK REQ.
READ-LOCK REQ.
UNLOCK REQ.
UNLOCK REQ.
PLURAL READ-LOCK REQUESTS ARE ALLOWED
S503
S504

FIG.6

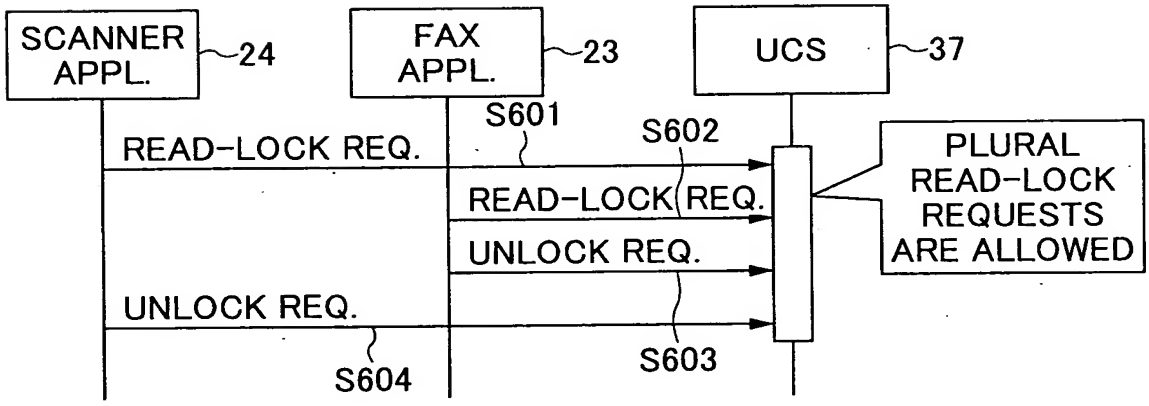

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S601
S602
READ-LOCK REQ.
READ-LOCK REQ.
UNLOCK REQ.
UNLOCK REQ.
PLURAL READ-LOCK REQUESTS ARE ALLOWED
S604
S603

FIG.7

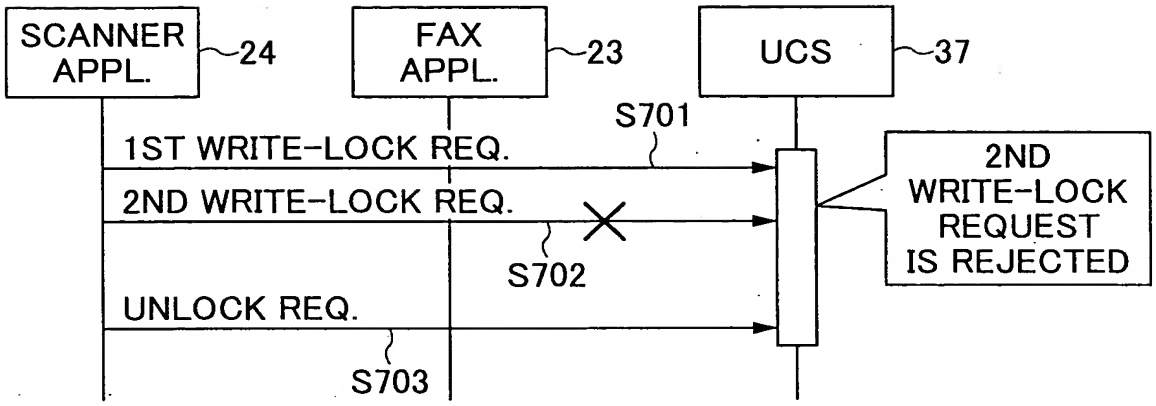

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S701
1ST WRITE-LOCK REQ.
2ND WRITE-LOCK REQ.
2ND WRITE-LOCK REQUEST IS REJECTED
S702
UNLOCK REQ.
S703

FIG.8

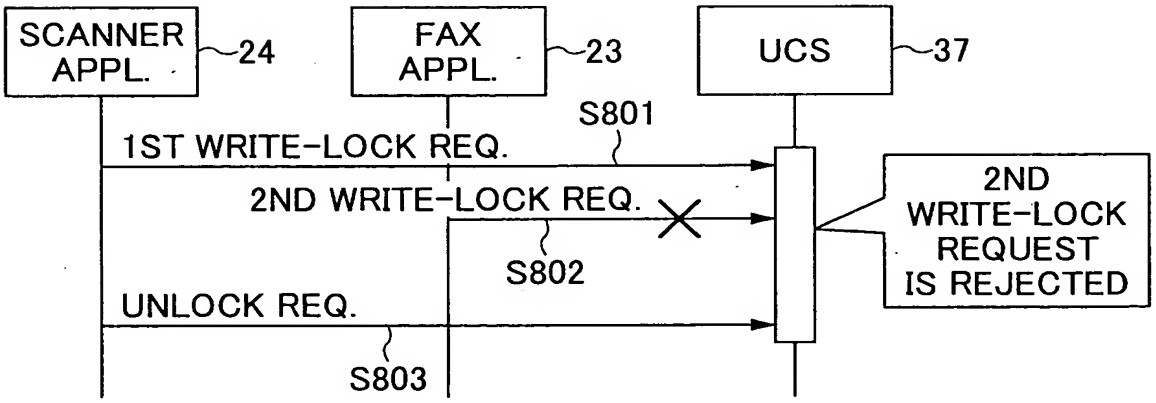

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S801
1ST WRITE-LOCK REQ.
2ND WRITE-LOCK REQ.
2ND WRITE-LOCK REQUEST IS REJECTED
S802
UNLOCK REQ.
S803

FIG.9

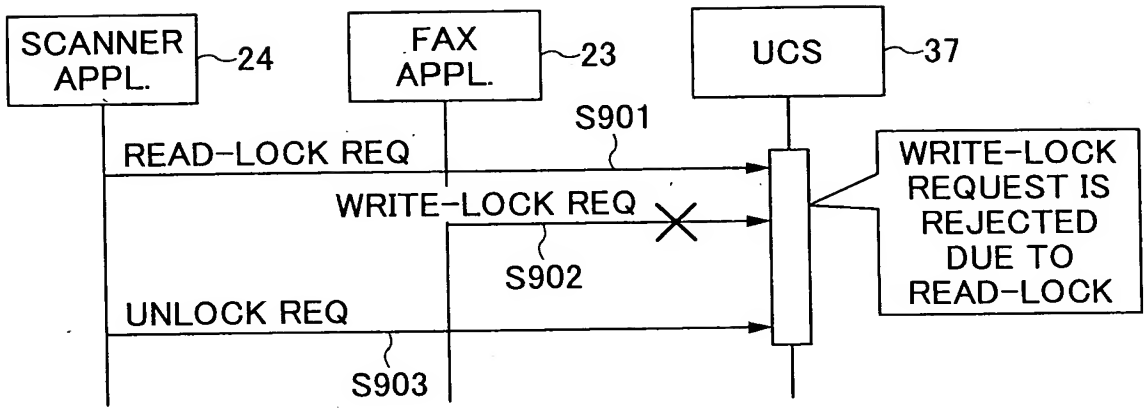

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S901
READ-LOCK REQ
WRITE-LOCK REQ
S902
UNLOCK REQ
S903
WRITE-LOCK REQUEST IS REJECTED DUE TO READ-LOCK

FIG.10

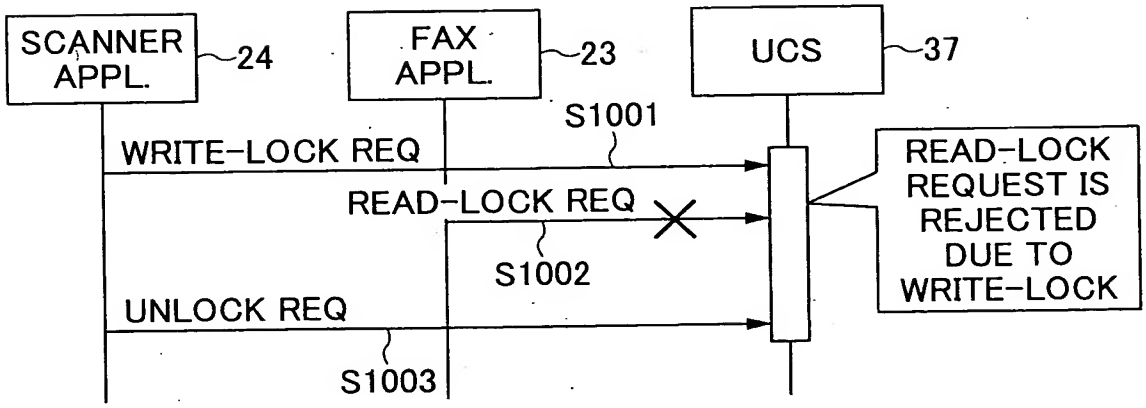

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S1001
WRITE-LOCK REQ
READ-LOCK REQ
S1002
UNLOCK REQ
S1003
READ-LOCK REQUEST IS REJECTED DUE TO WRITE-LOCK

FIG.11

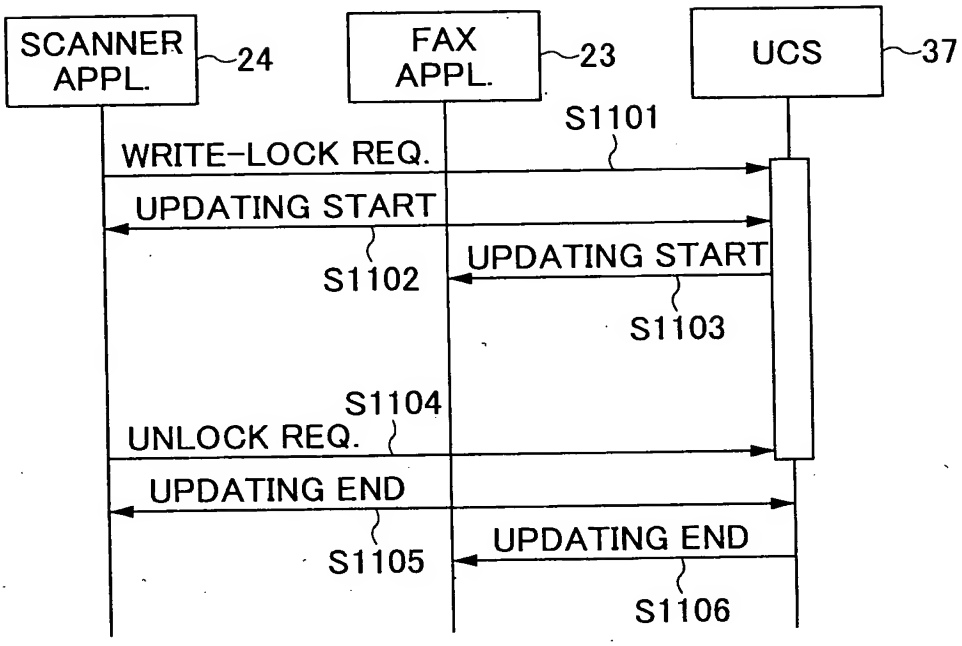

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S1101
WRITE-LOCK REQ.
UPDATING START
S1102
UPDATING START
S1103
S1104
UNLOCK REQ.
UPDATING END
S1105
UPDATING END
S1106

FIG.12

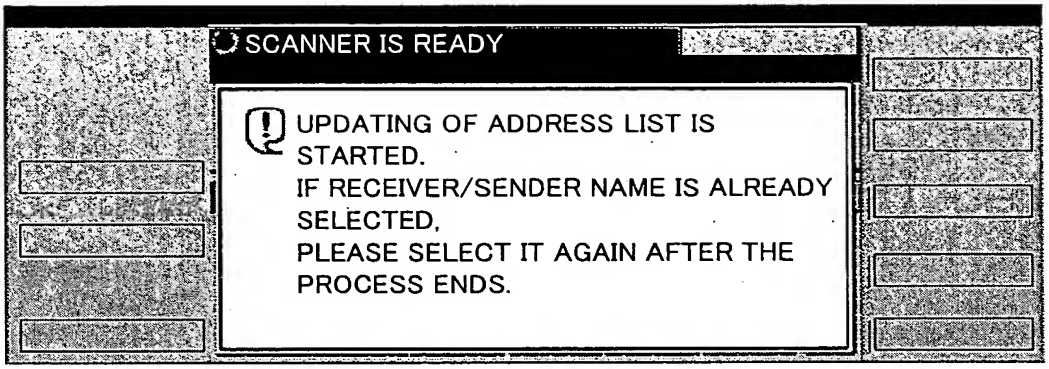

SCANNER IS READY
UPDATING OF ADDRESS LIST IS STARTED.
IF RECEIVER/SENDER NAME IS ALREADY SELECTED,
PLEASE SELECT IT AGAIN AFTER THE PROCESS ENDS.

FIG.13

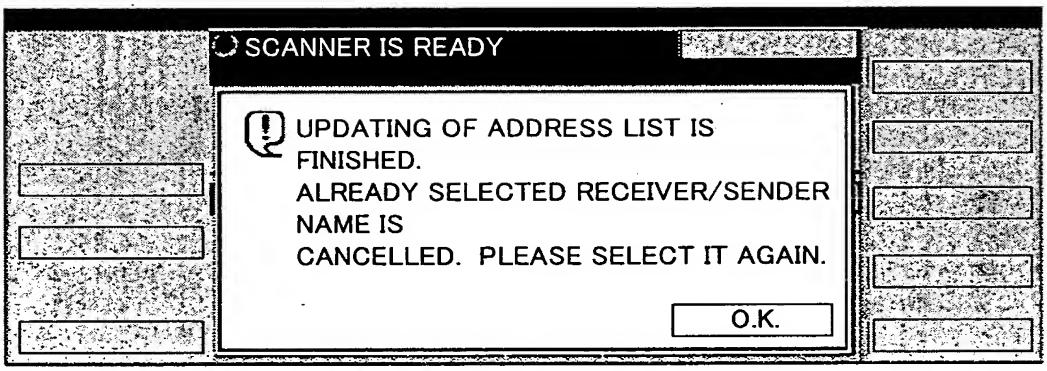

SCANNER IS READY
UPDATING OF ADDRESS LIST IS FINISHED.
ALREADY SELECTED RECEIVER/SENDER NAME IS
CANCELLED. PLEASE SELECT IT AGAIN.
O.K.

FIG.14

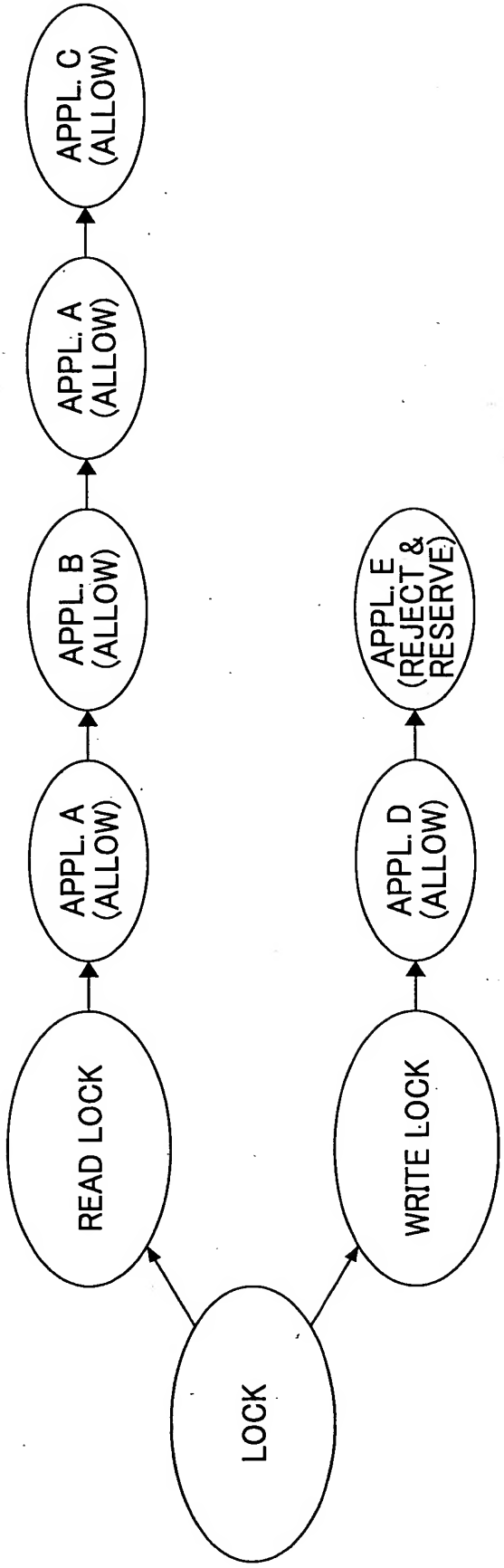

LOCK
READ LOCK
WRITE LOCK
APPL. A (ALLOW)
APPL. B (ALLOW)
APPL. A (ALLOW)
APPL. C (ALLOW)
APPL. D (ALLOW)
APPL. E (REJECT & RESERVE)

FIG.15

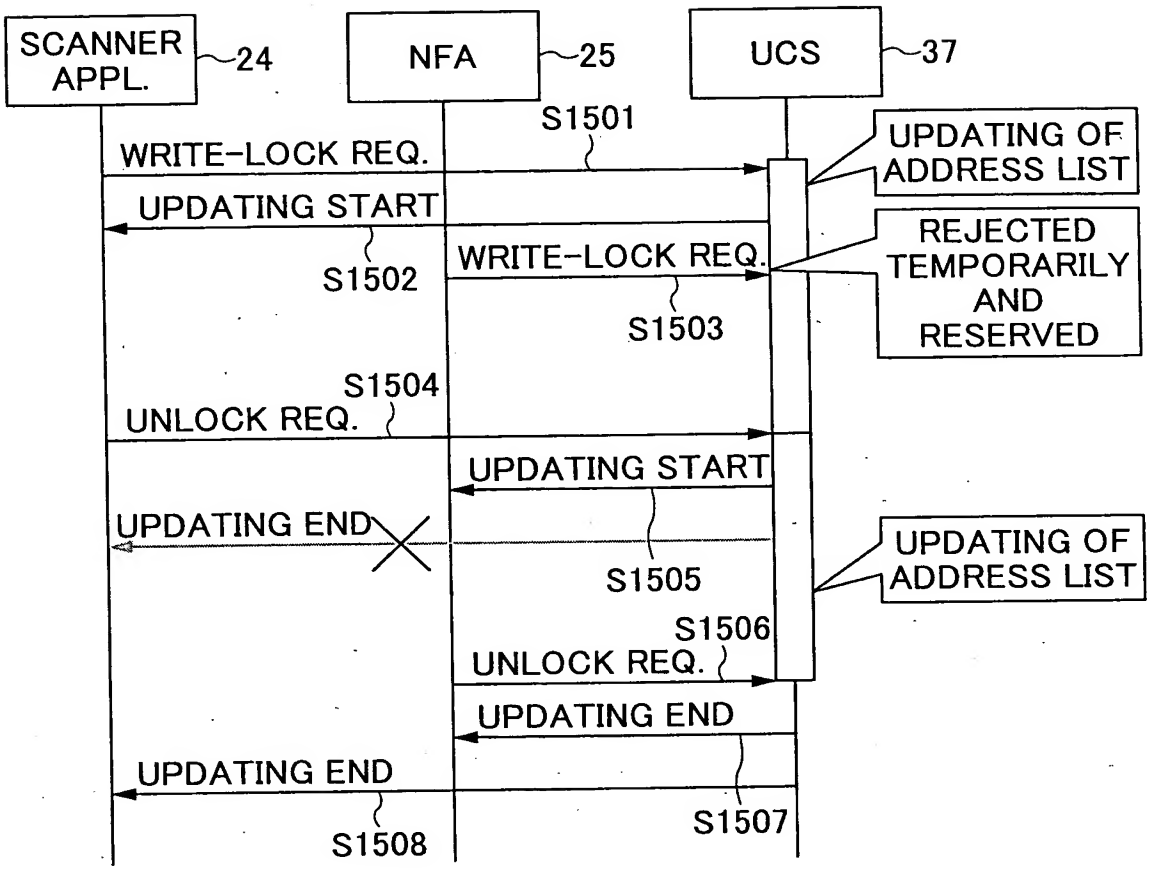

SCANNER APPL.
24
NFA
25
UCS
37
S1501
WRITE-LOCK REQ.
UPDATING OF ADDRESS LIST
UPDATING START
S1502
WRITE-LOCK REQ.
REJECTED TEMPORARILY AND RESERVED
S1503
S1504
UNLOCK REQ.
UPDATING START
UPDATING END
S1505
UPDATING OF ADDRESS LIST
S1506
UNLOCK REQ.
UPDATING END
UPDATING END
S1507
S1508

FIG.16

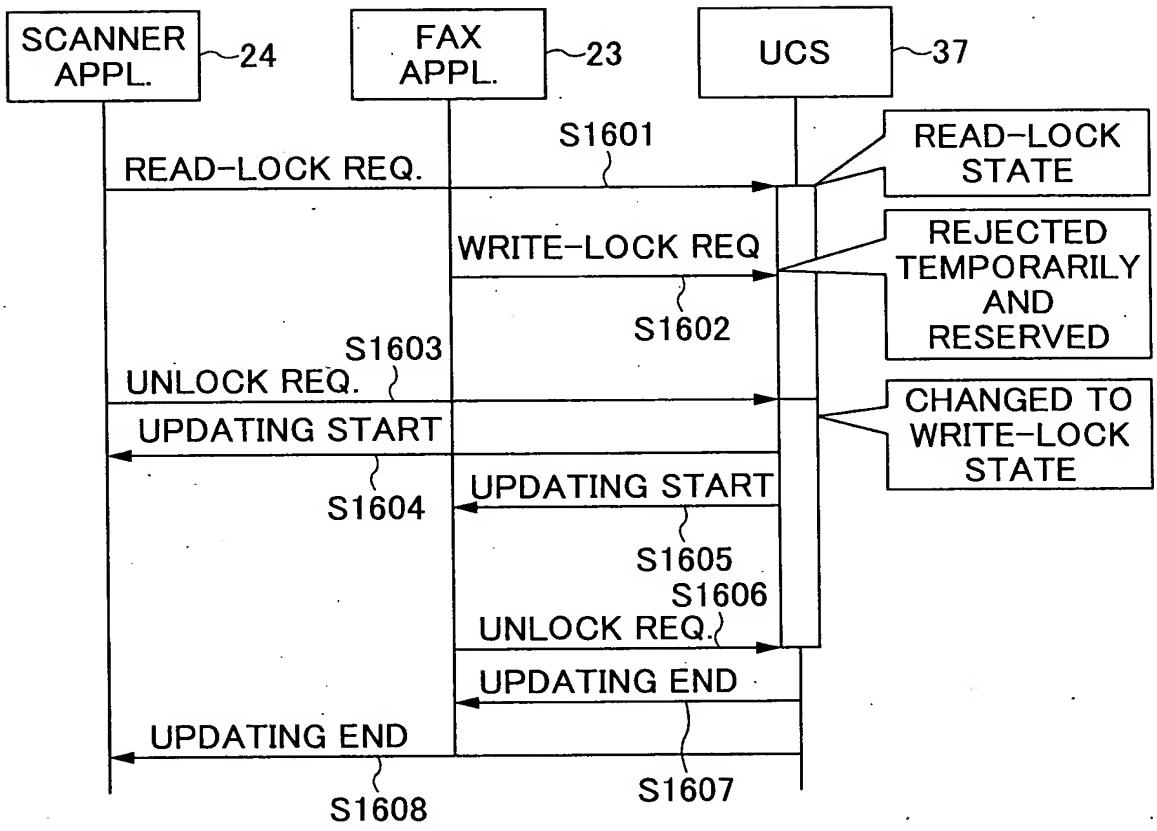

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S1601
READ-LOCK REQ.
READ-LOCK STATE
WRITE-LOCK REQ
REJECTED TEMPORARILY AND RESERVED
S1602
S1603
UNLOCK REQ.
CHANGED TO WRITE-LOCK STATE
UPDATING START
S1604
UPDATING START
S1605
S1606
UNLOCK REQ.
UPDATING END
UPDATING END
S1607
S1608

FIG.17

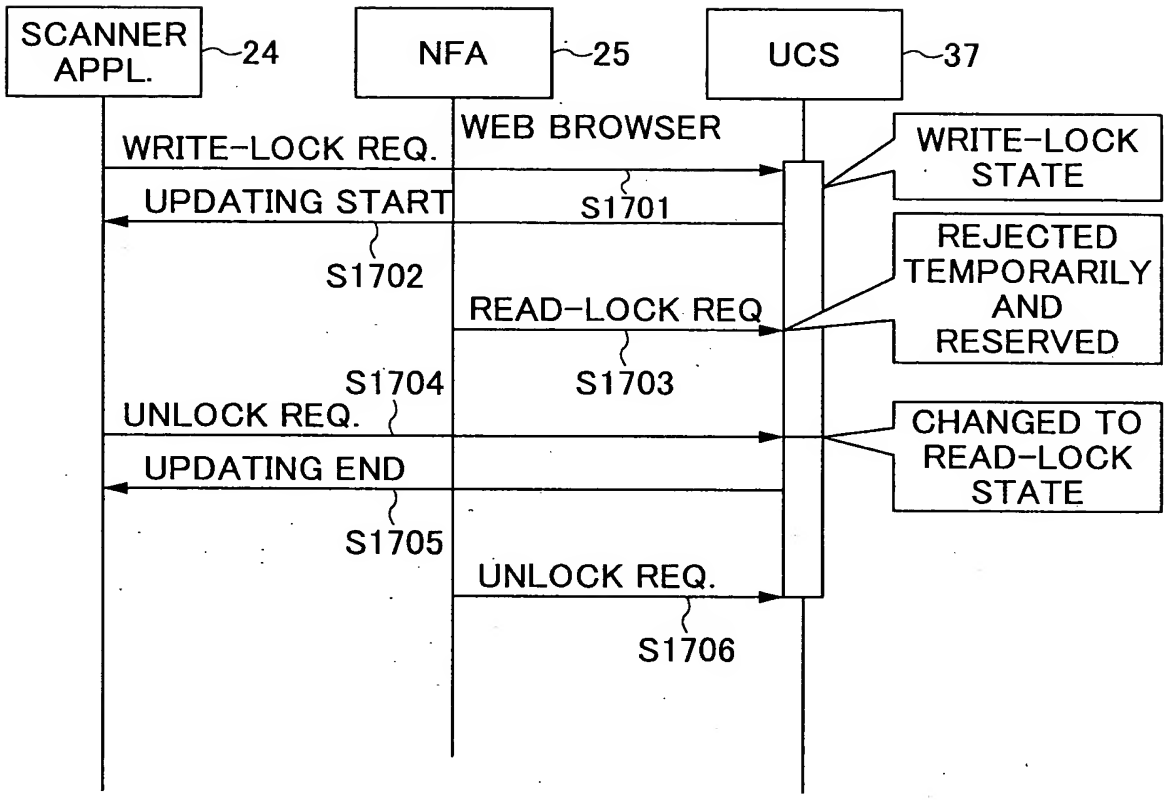

SCANNER APPL.
24
NFA
25
UCS
37
WEB BROWSER
WRITE-LOCK REQ.
S1701
WRITE-LOCK STATE
UPDATING START
S1702
REJECTED TEMPORARILY AND RESERVED
READ-LOCK REQ
S1703
S1704
UNLOCK REQ.
CHANGED TO READ-LOCK STATE
UPDATING END
S1705
UNLOCK REQ.
S1706

FIG.18

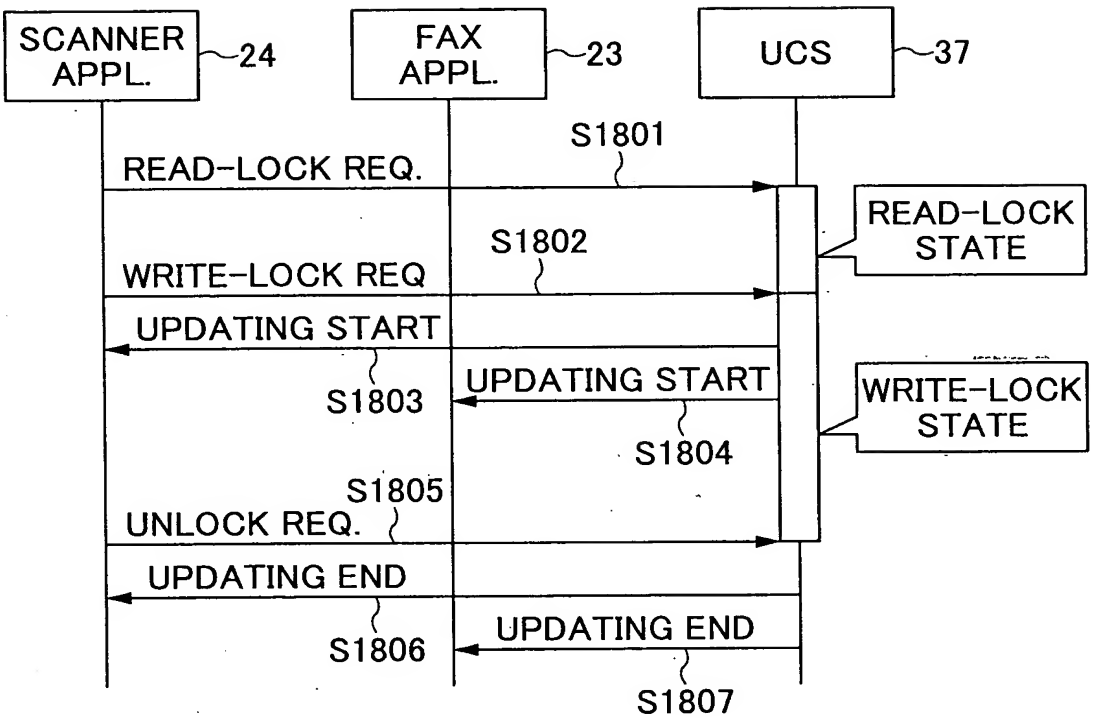

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S1801
READ-LOCK REQ.
READ-LOCK STATE
S1802
WRITE-LOCK REQ
UPDATING START
S1803
UPDATING START
S1804
WRITE-LOCK STATE
S1805
UNLOCK REQ.
UPDATING END
S1806
UPDATING END
S1807

FIG.19

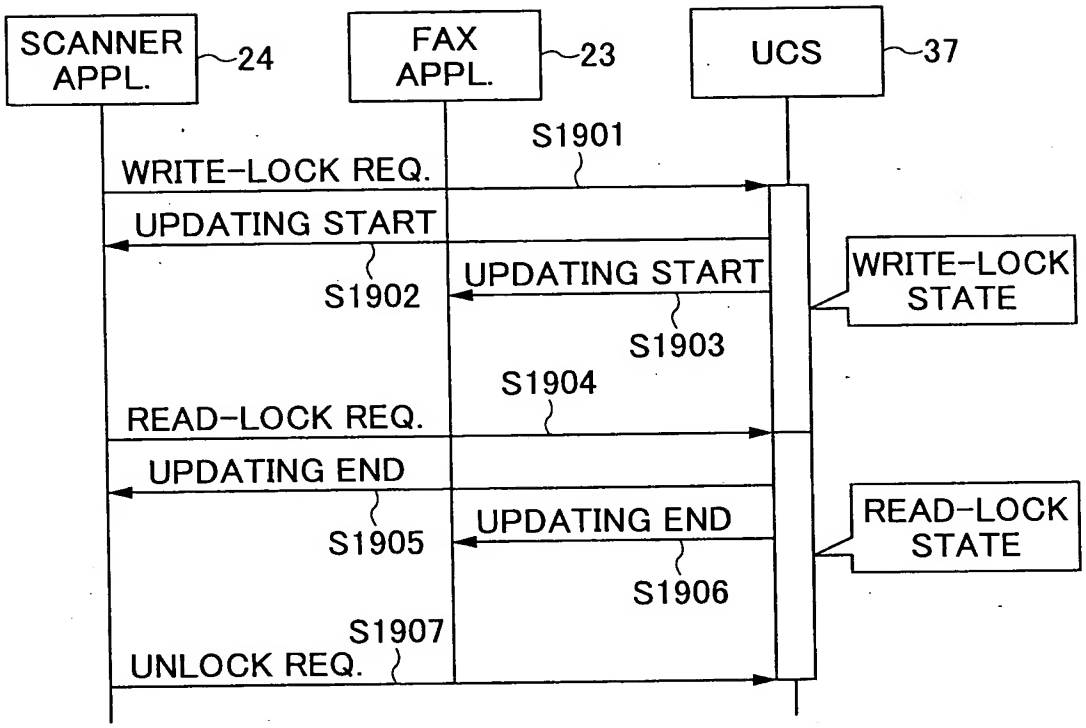

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S1901
WRITE-LOCK REQ.
UPDATING START
S1902
UPDATING START
S1903
WRITE-LOCK STATE
S1904
READ-LOCK REQ.
UPDATING END
S1905
UPDATING END
S1906
READ-LOCK STATE
S1907
UNLOCK REQ.

FIG.20

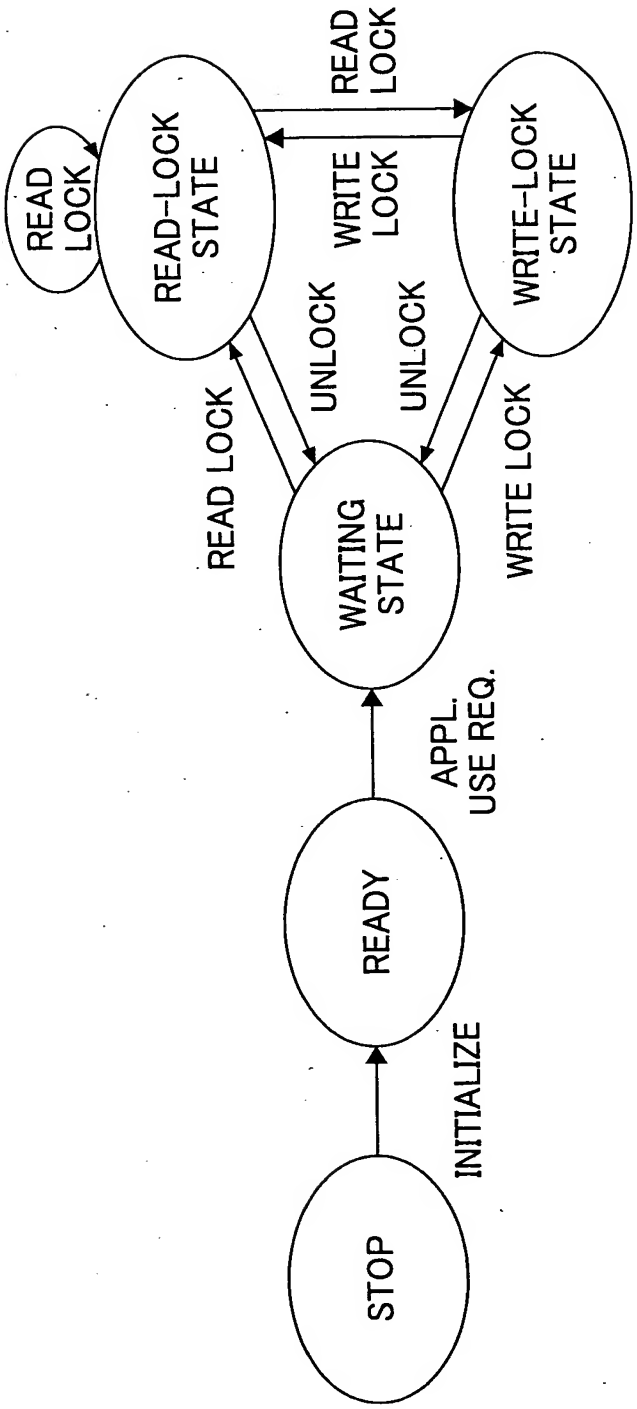

READ LOCK
READ-LOCK STATE
READ LOCK
WRITE LOCK
WRITE-LOCK STATE
UNLOCK
UNLOCK
READ LOCK
WRITE LOCK
WAITING STATE
APPL. USE REQ.
READY
INITIALIZE
STOP

FIG.21

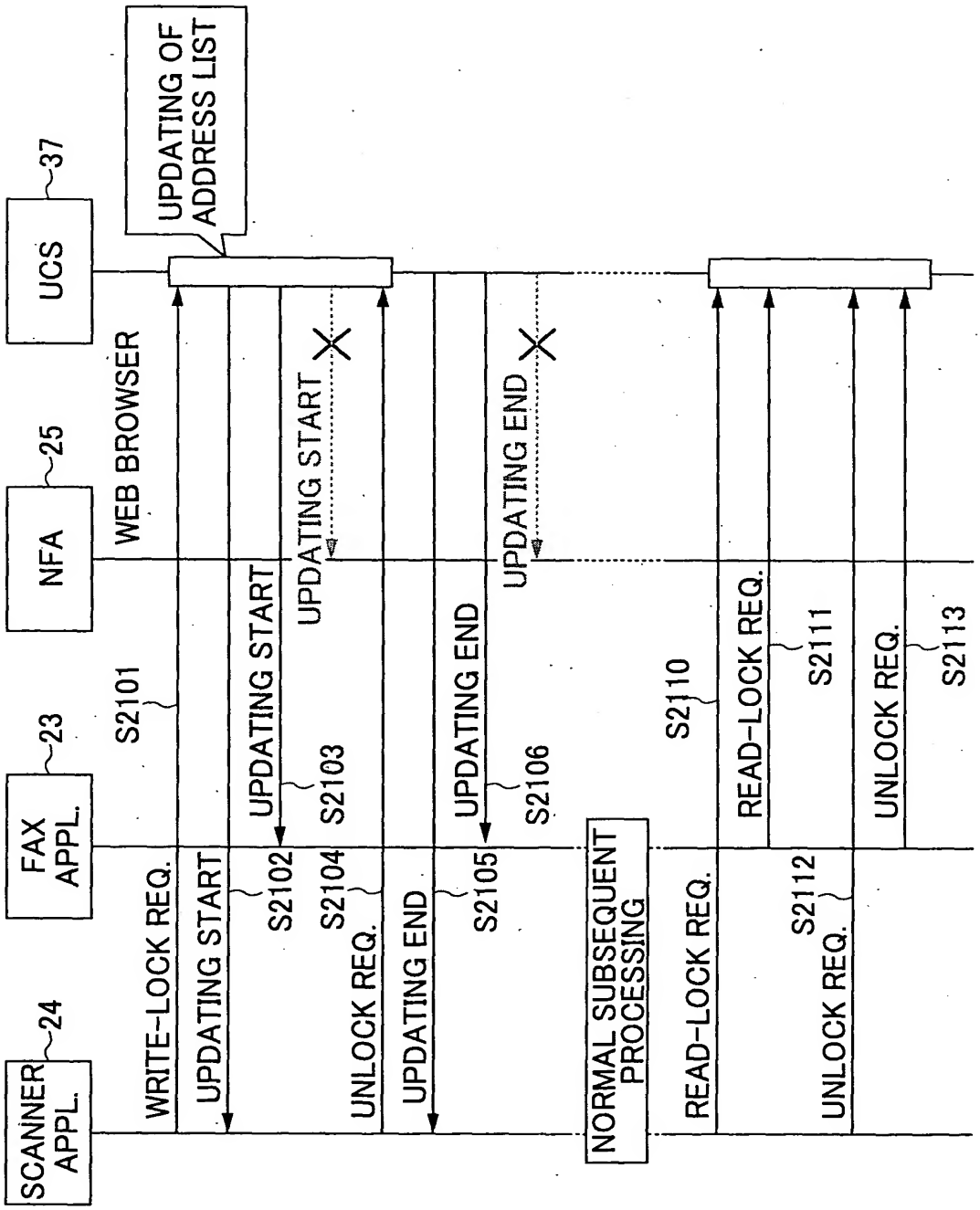

SCANNER APPL.
24
FAX APPL.
23
NFA
25
WEB BROWSER
UCS
37
UPDATING OF ADDRESS LIST
WRITE-LOCK REQ.
S2101
UPDATING START
S2102
UPDATING START
UPDATING START
S2103
UNLOCK REQ.
S2104
UPDATING END
S2105
UPDATING END
UPDATING END
S2106
NORMAL SUBSEQUENT PROCESSING
READ-LOCK REQ.
S2110
READ-LOCK REQ.
S2111
UNLOCK REQ.
S2112
UNLOCK REQ.
S2113

FIG.22

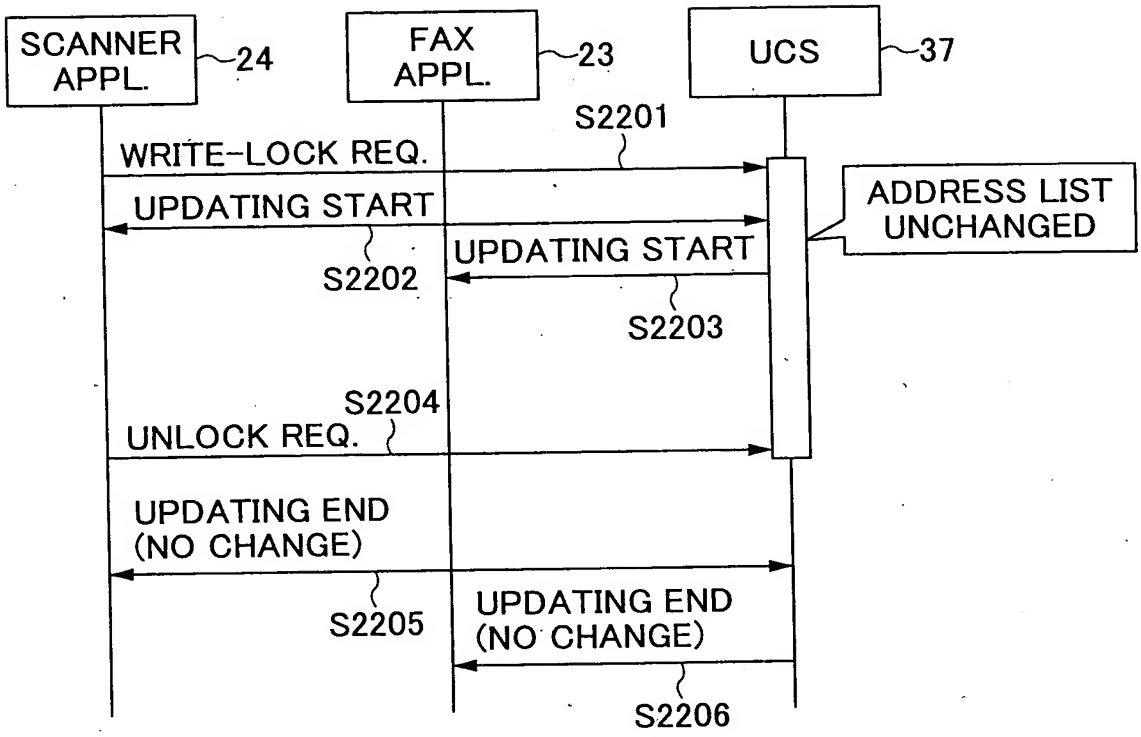

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S2201
WRITE-LOCK REQ.
UPDATING START
ADDRESS LIST UNCHANGED
UPDATING START
S2202
S2203
S2204
UNLOCK REQ.
UPDATING END (NO CHANGE)
S2205
UPDATING END (NO CHANGE)
S2206

FIG.23

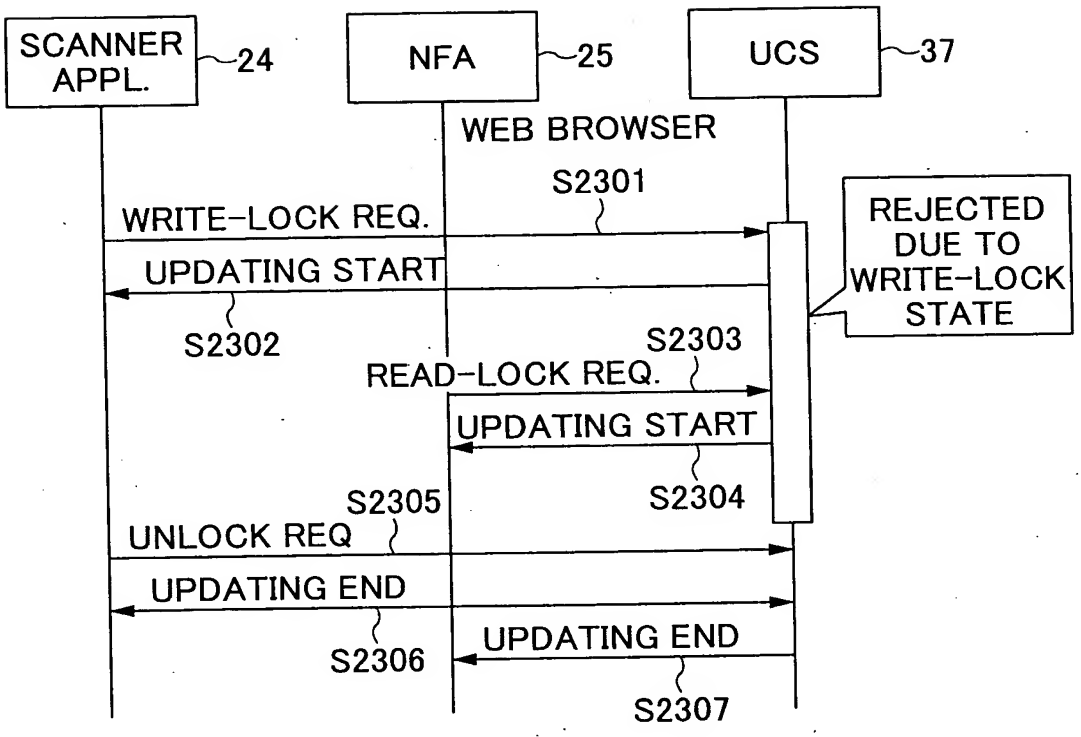

SCANNER APPL.
24
NFA
25
UCS
37
WEB BROWSER
S2301
WRITE-LOCK REQ.
REJECTED DUE TO WRITE-LOCK STATE
UPDATING START
S2302
S2303
READ-LOCK REQ.
UPDATING START
S2304
S2305
UNLOCK REQ
UPDATING END
S2306
UPDATING END
S2307

FIG.24

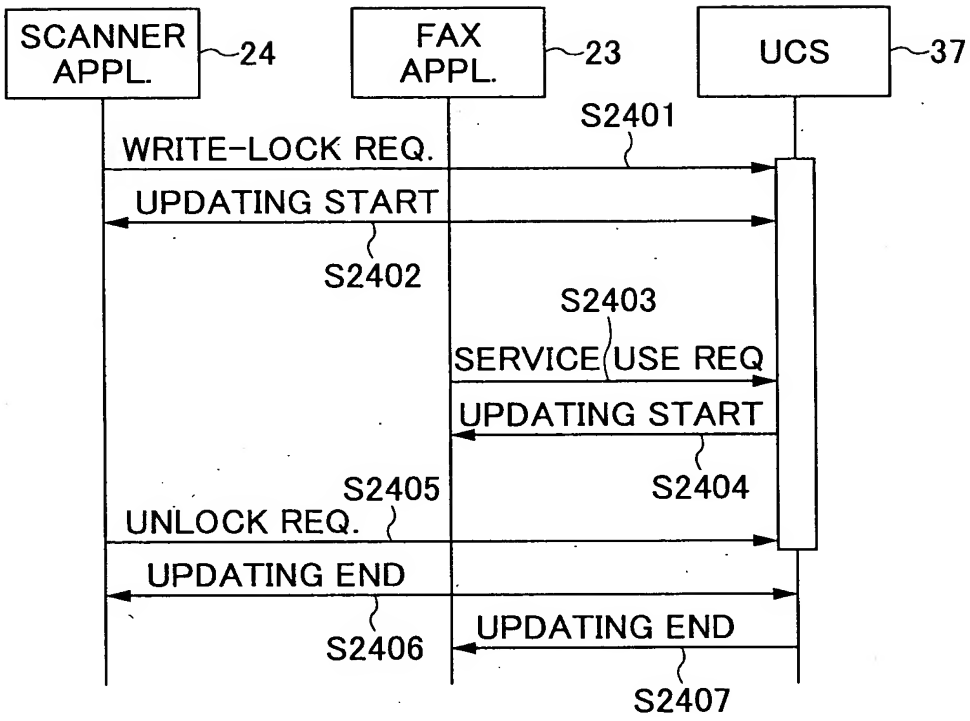

SCANNER APPL.
24
FAX APPL.
23
UCS
37
S2401
WRITE-LOCK REQ.
UPDATING START
S2402
S2403
SERVICE USE REQ
UPDATING START
S2404
S2405
UNLOCK REQ.
UPDATING END
S2406
UPDATING END
S2407

FIG.25

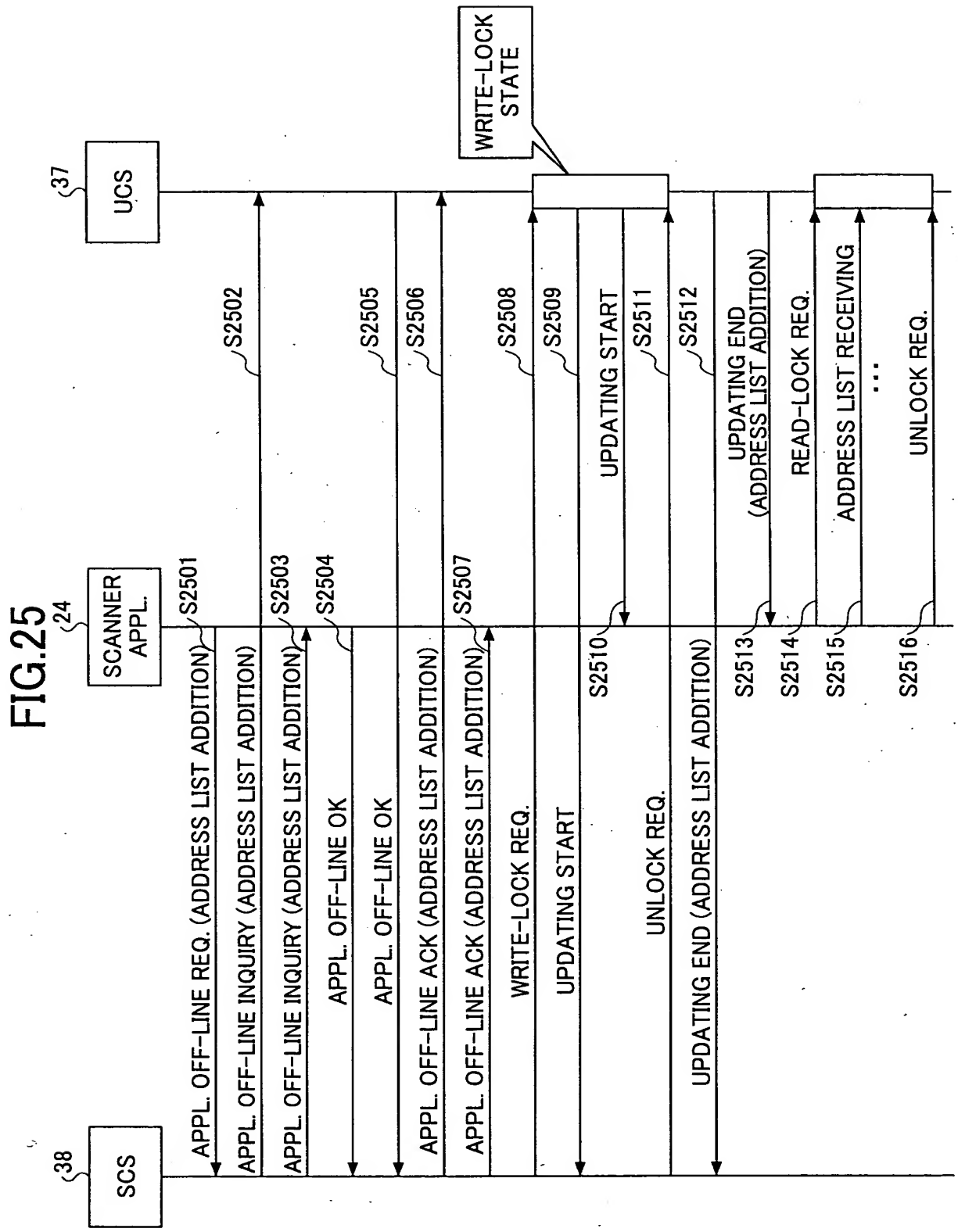

38
SCS
24
SCANNER APPL.
37
UCS
WRITE-LOCK STATE
S2501
APPL. OFF-LINE REQ. (ADDRESS LIST ADDITION)
S2502
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2503
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2504
APPL. OFF-LINE OK
S2505
APPL. OFF-LINE OK
S2506
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2507
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2508
WRITE-LOCK REQ.
S2509
UPDATING START
S2510
UPDATING START
S2511
UNLOCK REQ.
S2512
UPDATING END (ADDRESS LIST ADDITION)
S2513
UPDATING END (ADDRESS LIST ADDITION)
S2514
READ-LOCK REQ.
S2515
ADDRESS LIST RECEIVING
...
S2516
UNLOCK REQ.

FIG.26

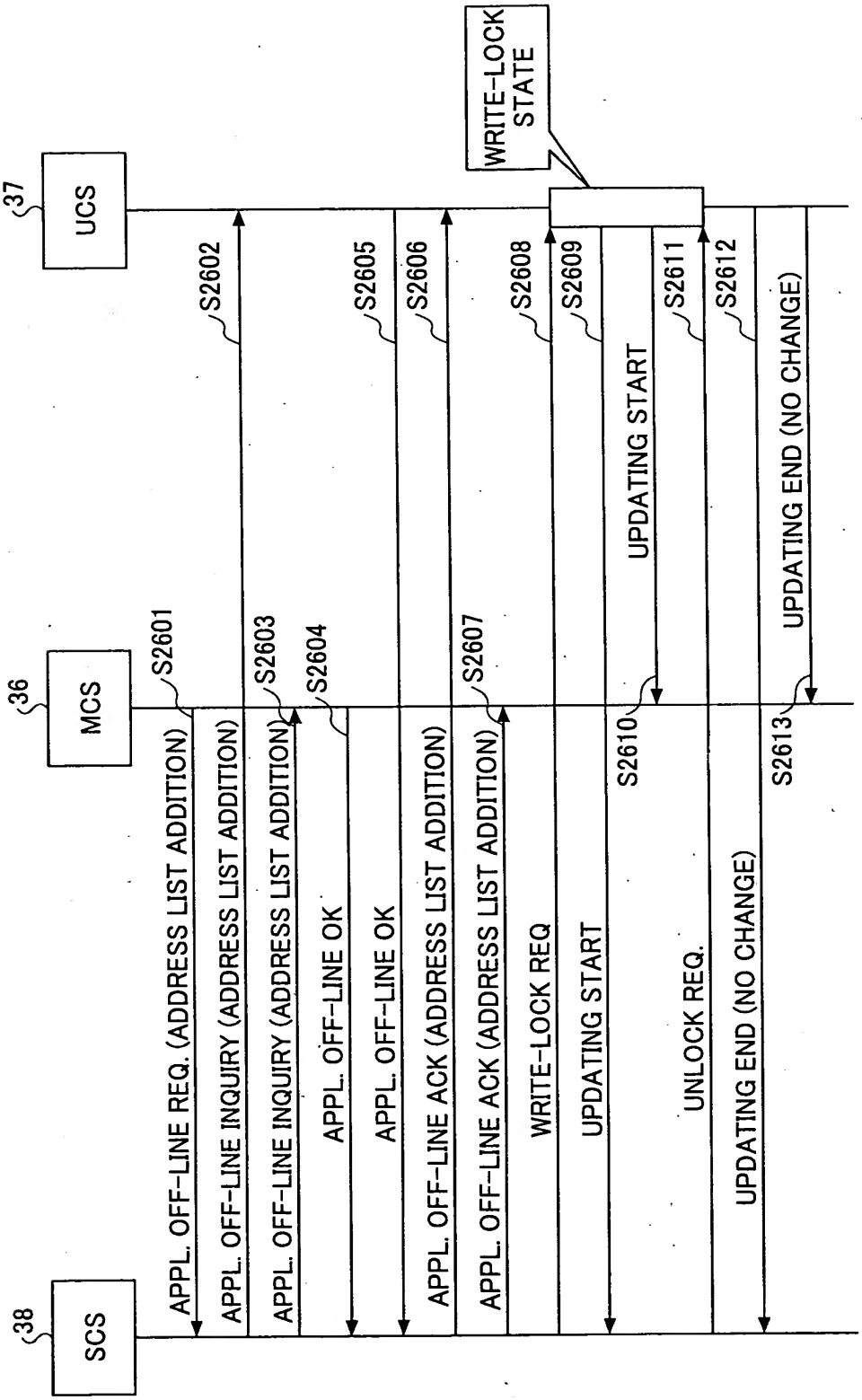

SCS
38
MCS
36
UCS
37
WRITE-LOCK STATE
APPL. OFF-LINE REQ. (ADDRESS LIST ADDITION)
S2601
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2602
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2603
APPL. OFF-LINE OK
S2604
APPL. OFF-LINE OK
S2605
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2606
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2607
WRITE-LOCK REQ
S2608
UPDATING START
S2609
S2610
UNLOCK REQ.
S2611
UPDATING END (NO CHANGE)
S2612
S2613
UPDATING END (NO CHANGE)

FIG.27

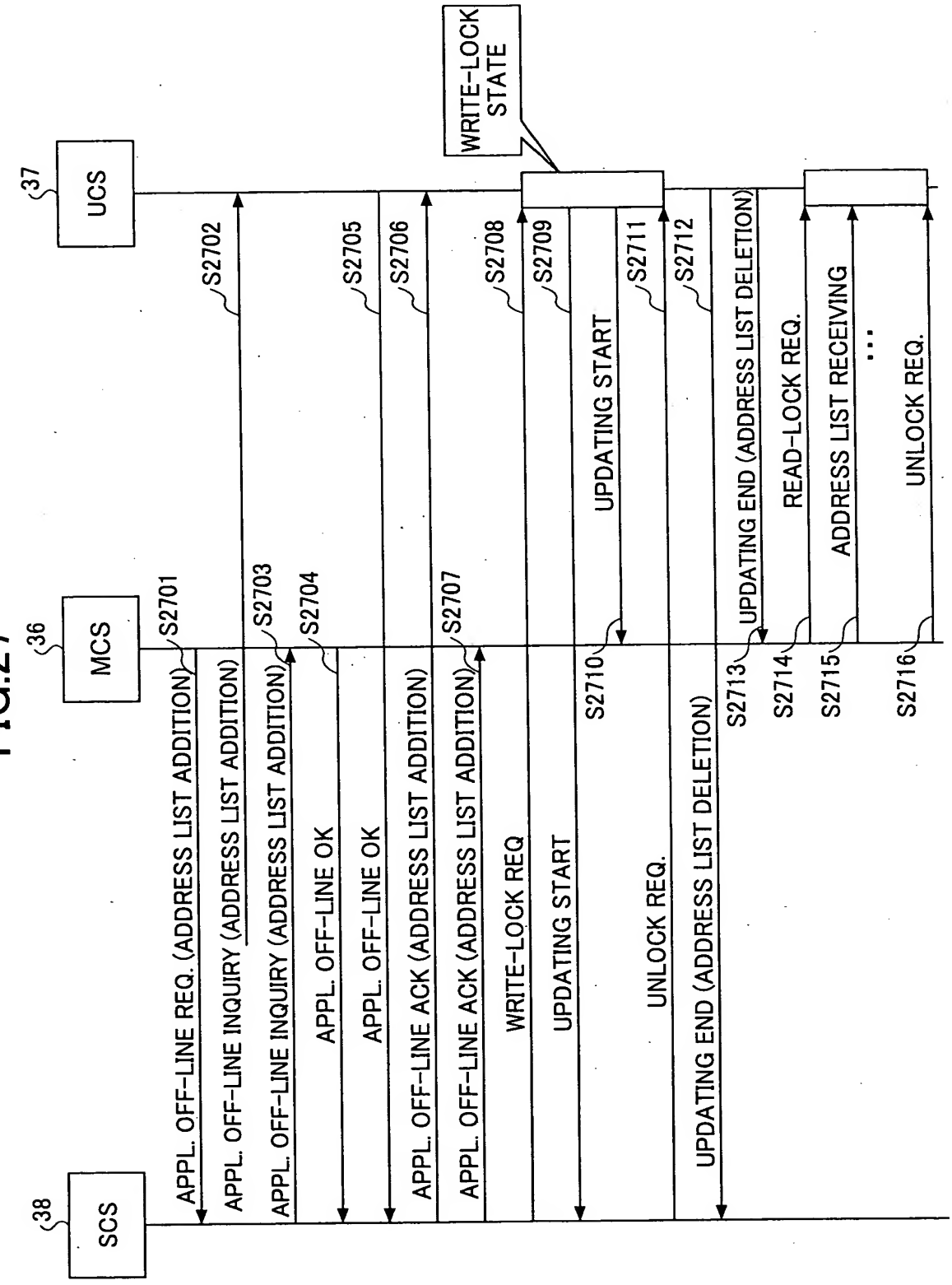

38
SCS
36
MCS
37
UCS
WRITE-LOCK STATE
S2701
APPL. OFF-LINE REQ. (ADDRESS LIST ADDITION)
S2702
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2703
APPL. OFF-LINE INQUIRY (ADDRESS LIST ADDITION)
S2704
APPL. OFF-LINE OK
S2705
APPL. OFF-LINE OK
S2706
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2707
APPL. OFF-LINE ACK (ADDRESS LIST ADDITION)
S2708
WRITE-LOCK REQ
S2709
UPDATING START
S2710
UPDATING START
S2711
UNLOCK REQ.
S2712
UPDATING END (ADDRESS LIST DELETION)
S2713
UPDATING END (ADDRESS LIST DELETION)
S2714
READ-LOCK REQ.
S2715
ADDRESS LIST RECEIVING
...
S2716
UNLOCK REQ.

FIG.28

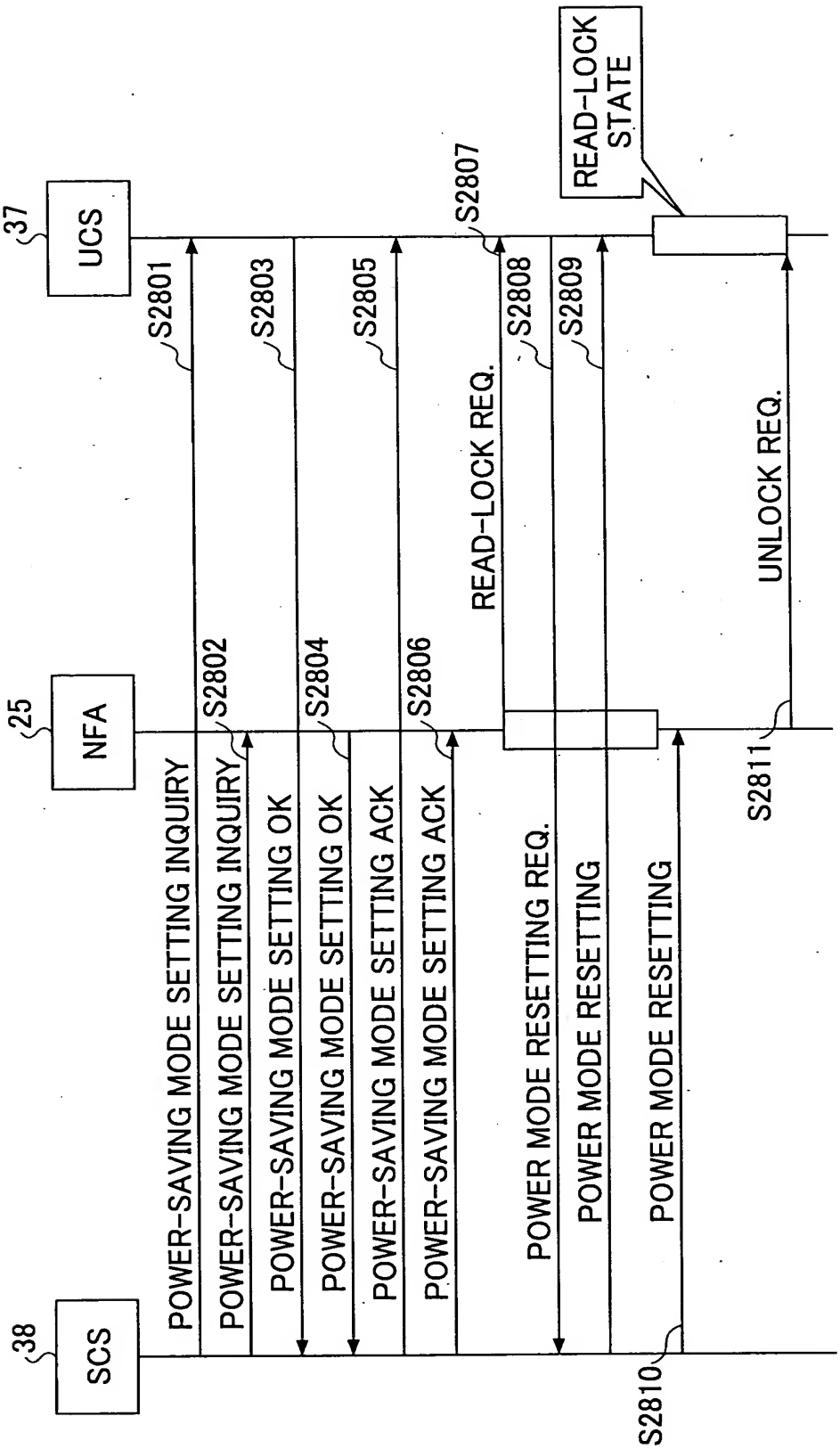

37
UCS
25
NFA
38
SCS
S2801
POWER-SAVING MODE SETTING INQUIRY
S2802
POWER-SAVING MODE SETTING INQUIRY
S2803
POWER-SAVING MODE SETTING OK
S2804
POWER-SAVING MODE SETTING OK
S2805
POWER-SAVING MODE SETTING ACK
S2806
POWER-SAVING MODE SETTING ACK
S2807
READ-LOCK REQ.
S2808
POWER MODE RESETTING REQ.
S2809
POWER MODE RESETTING
S2810
POWER MODE RESETTING
S2811
UNLOCK REQ.
READ-LOCK STATE

FIG.29

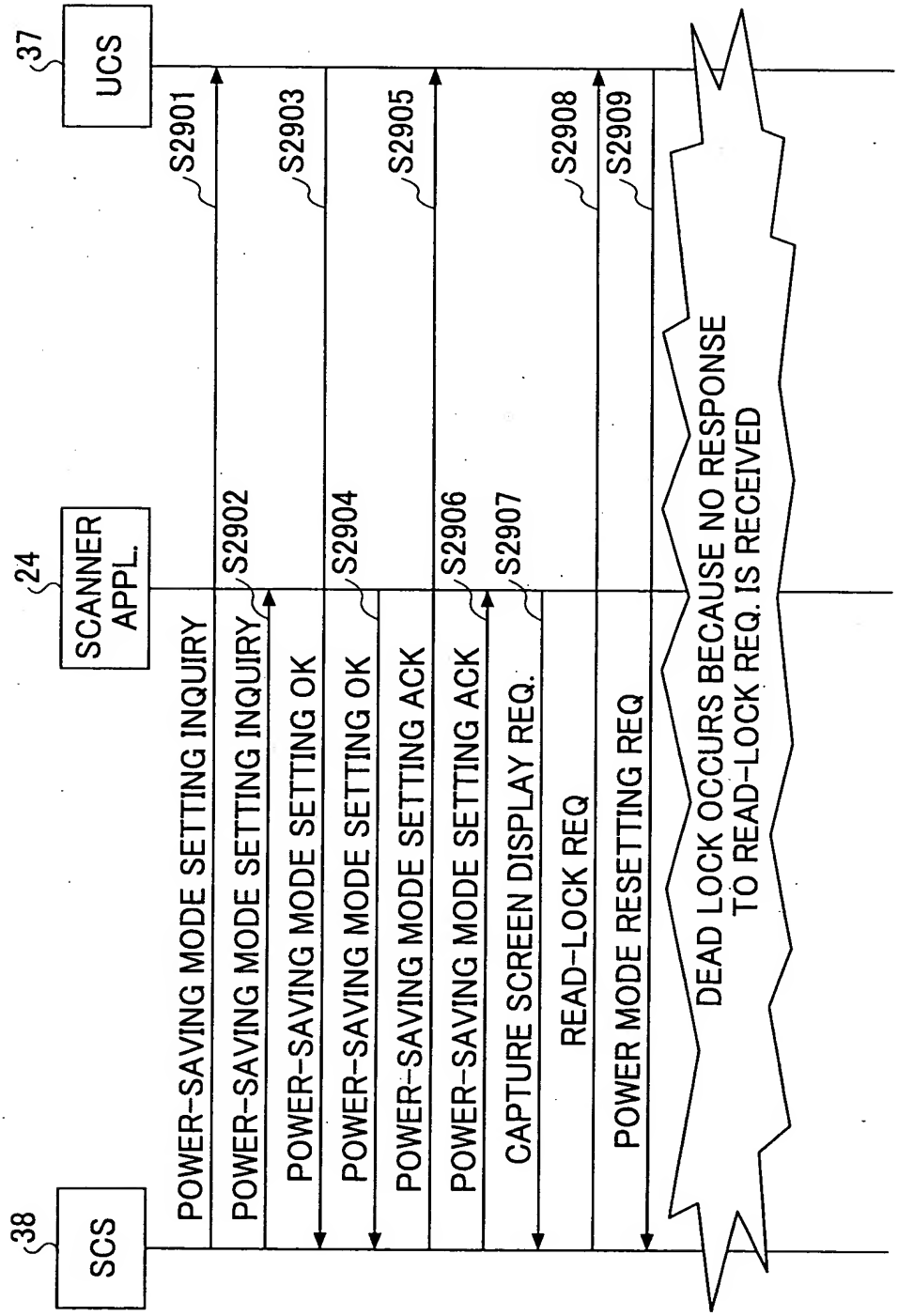
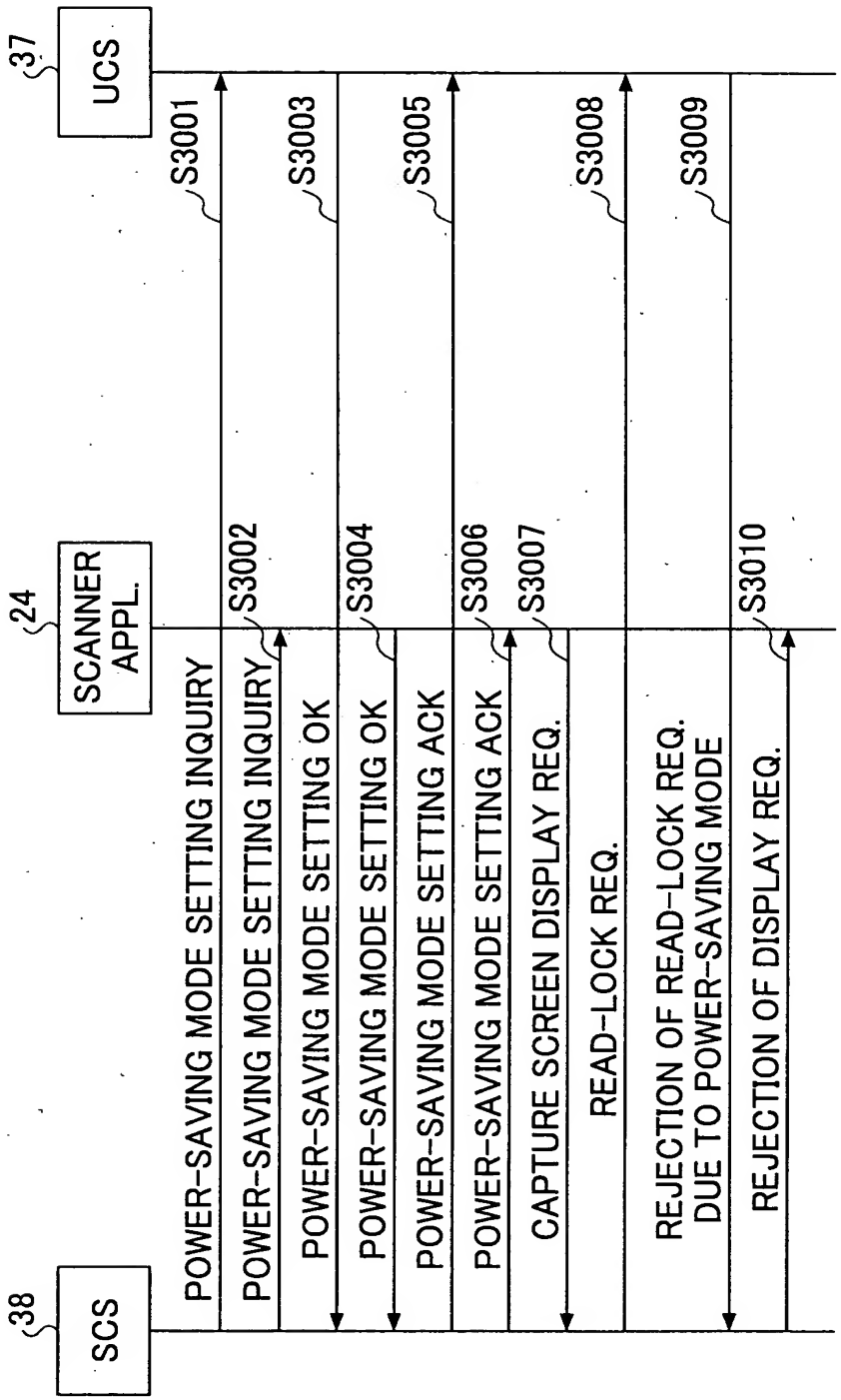

38
SCS
24
SCANNER APPL.
37
UCS
S2901
POWER-SAVING MODE SETTING INQUIRY
S2902
POWER-SAVING MODE SETTING INQUIRY
S2903
POWER-SAVING MODE SETTING OK
S2904
POWER-SAVING MODE SETTING OK
S2905
POWER-SAVING MODE SETTING ACK
S2906
POWER-SAVING MODE SETTING ACK
S2907
CAPTURE SCREEN DISPLAY REQ.
S2908
READ-LOCK REQ
S2909
POWER MODE RESETTING REQ
DEAD LOCK OCCURS BECAUSE NO RESPONSE TO READ-LOCK REQ. IS RECEIVED

FIG.30


38
SCS
24
SCANNER APPL.
37
UCS
POWER-SAVING MODE SETTING INQUIRY
S3001
POWER-SAVING MODE SETTING INQUIRY
S3002
POWER-SAVING MODE SETTING OK
S3003
POWER-SAVING MODE SETTING OK
S3004
POWER-SAVING MODE SETTING ACK
S3005
POWER-SAVING MODE SETTING ACK
S3006
CAPTURE SCREEN DISPLAY REQ.
S3007
READ-LOCK REQ.
S3008
REJECTION OF READ-LOCK REQ. DUE TO POWER-SAVING MODE
S3009
REJECTION OF DISPLAY REQ.
S3010